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FOUNDED BY WILLIAM HUNTING, F.R.C.V.S.

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SCHEDULED DISEASE.

We now have the Board of Agriculture's returns of scheduled disease for practically one-third of this year, and can compare the figures with those of the corresponding periods in previous years. The result can scarcely be called wholly satisfactory. One disease alone has declined—anthrax, which shows a fall of practically 20% from the same period last year, and a still larger one from 1914. Three other diseases—glanders, sheep scab, and swine fever—have increased upon last year, though in the case of the first two the increases are not alarming. The position of swine fever would be really disquieting if we failed to remember the unaccountable exacerbations which this disease often shows, one of which may well be in evidence now. Over 1600 outbreaks have occurred this year already—a great increase on both the 1915 and 1914 figures, and more than double those of 1913. It seems highly possible that the full year's total may exceed 4000 outbreaks, and perhaps do so considerably.

Parasitic mange is also very prevalent. As the Mange Order was suspended for the first three months of 1915, no useful comparison with last year's figures can yet be made. But this year, so far, we have had rather more outbreaks than in 1914, and not much fewer than in 1913.

We have had only one outbreak of foot-and-mouth disease this year; but the danger of its reappearance is ever present. Looking back over the whole period of the war, we think that the Board of Agriculture may fairly be congratulated upon the fact that this disease has not visited us more often. We could hardly have hoped for an absolute freedom from it; but we have enjoyed a comparative one—and we might have fallen very far short of that.

Probably the continued and augmenting effect of war conditions is the main cause of the general increase in scheduled disease. Numerical decrease in inspectors, lessened vigilance on the part of some owners, sales of army horses which often spread scheduled as well as unscheduled disease, are all factors working towards the same result. It is very probable that, while the war lasts, we shall continue to have more contagious disease in the country than we had two years ago; but there is nothing in the present figures to suggest that the increase is likely to be very serious. After the war, some new and very important questions in connection with animal disease will arise, and will throw a heavy responsibility upon the profession.

"RESEARCH" AND THE COLLEGES.

On p. 510 will be found portions of letters on this subject from a member of the East Lothian Horse Breeding Society and from Principal Bradley. That the suggestion is for the time impracticable is a foregone conclusion; but it is to be hoped that the attitude towards the College, and hence to the profession, is an earnest of the future. There have been investigations on at least two animal diseases carried out in Scotland, and work of a similar character at Cambridge in which veterinary men had no part. The history of the long delayed examination of stallions in Scotland is another evidence of the little appreciation of veterinary science in the north; yet in no part of the Kingdom is the work of individuals so freely recognised—as witness the valuable presentations and appreciative addresses to several private practitioners on leaving the districts in which they have practised. The persistent neglect of veterinary work by the State—in strong contrast to the policy of other governments—is reflected in the estimation in which it is held by that section of the community most widely interested. So far as we know, this present suggestion of the desirability of veterinary assistance is the first that has been made—outside the enlightened and continued support of the R.A.S.E.

VOMITION IN RUMINANTS.

In the discussion on Mr. Davis' paper on Vomition in Animals, Prof. Macqueen is reported as saying he had never met anyone who had seen a cow vomit. I think I have met cases which could hardly be called simple regurgitation.

A big Irish bullock, three years old, half-beef, was treated for "wooden tongue" with the usual iodine internally and externally. He apparently recovered, and was doing well and putting on flesh when the owner came to me, perhaps a month after, to say he had began to vomit all he ate. What would happen was this—on getting his usual mangolds and cake he ate freely with the others in the fold, and filled himself quite naturally, then perhaps an hour after he would start vomiting and completely empty the rumen, until he looked like a greyhound; then he would be ready for his next feed. I told the owner it was his old complaint spread to the œsophagus, and advised slaughter if he could make £12 of him. However, the best bid was £3, and he came to me for more medicine rather than accept it. Instead of the usual 5 gr. doses I gave him

10 gr. Within the week he gradually improved, and within three months I watched him sold through the auction ring at £28—when beef was at its cheapest.

Some three years ago I was called to see some sheep. Four ewes were dead and eight or ten very ill. I suspected poison, and with the assistance of a botanist proved it to be hemlock. Three of those ewes vomited freely, and large quantities of it, and made good recoveries: two more died: the others tumbled about for several days before getting to their legs again, but they did recover.

Those that vomited, although very far through when I first saw them, were soon on their legs and all brain symptoms gone.

WM. A. CAMPBELL, M.R.C.V.S.

VOMITING IN THE HORSE.

Referring to the discussion on this disorder in the last *Veterinary Record*, I should like to relate an experience that I had.

On Feb. 28th last, I was called by a firm of railway carriers to a roan cart mare, ten years old, and in good condition. The animal was down, and had all symptoms of colic with vomiting; sitting on its haunches, running backwards, and in fact all the symptoms of trouble in the anterior part of the digestive tract.

I did not administer any drenches, but treated the mare hypodermically with morphia. I saw the animal again, three hours after it was taken bad, and came to the conclusion that it was a case of rupture of stomach and told owner so, and that animal would die. It was agreed to 'phone me to tell me when to see her opened, but as no 'phone message came, I called at stables on following day and found the mare feeding and recovered. She was put to work again three days after, and continued at work for four weeks, when the animal was taken ill again. I went to see her; found her showing all symptoms that she had on previous occasion: treatment adopted was the same as before.

The mare died eight hours after, and post-mortem revealed a rupture of the stomach. The rupture commenced 2 in. below œsophageal opening, and extended about 6 in. in a downward direction. There were no signs of old lesions in any of the coats of stomach. C. A. MALVISI.

COLIC—OBSCURE ORIGIN.*

The patient, an eight-year-old Shire bred mare, showed symptoms of colic whilst at work, on Monday, 25th April. She was sent home and a colic draught given which gave relief. Late that night she was again showing pain; the owner decided it was a case of indigestion, gave a six dram dose of physic: the following morning, there being no improvement, I was sent for early.

I found the mare showing colicy symptoms; sweating profusely, pulse 50, full and hard, respirations 18, and temperature 101.2. I elicited that no action of the bowel had taken place since the preceding morning, and that urination was scanty. I explored the rectum but could find no impaction or displacement, and the bladder was empty.

I gave her per orem Linseed oil 1 pint, and subcutaneously Eserine sulph. 1 gr., Pilocarpine 1 gr., and a copious rectal injection of soapy water, and left the mare with instructions to give a draught which I left, composed of Chloral hydras. ʒiv. two hours later if the mare was still in pain. In the evening I again visited the mare. There had been no action of the bowel, the only action noticed was the characteristic one of the pilocarpine. Extensive salivation had lasted about half-an-hour. Symptoms of pain were less, pulse and respirations normal in tone and frequency, temperature 100.6.

Periodically for ten to fifteen minutes she would continually scrape the floor with the front feet, and turn her head toward the right side. Again explored rectum without result, and gave further injection: gave a further four drams of aloes, thinking perhaps only part of the ball had been given, although owner said he had seen it go. Informed him that I considered it a pure case of obstruction, and that relief would eventuate.

Wednesday: The mare remained in the same condition all day; periodic scrapings with both fore feet, no action of bowels, urination scanty and high-coloured. Administered another 1½ pints of Linseed oil, and gave hypodermically ½ grain Strychnia.

Thursday: No change. Membranes a little injected, pulse, respirations, and temperature normal. Pain shown less frequently. Gave more Strychnia.

Friday was a replica of the previous day. Mare had taken some bran mash and drank freely of water. Nux vomica substituted for the strychnia. More clysters given.

At midnight the mare was found to be sweating freely and in great pain, so the dose of chloral was at once given, which relieved it immediately.

On Saturday she appeared unchanged; the scraping symptom was still observed, but was less frequent: a small piece of mucous coated fæces had been evacuated with the enemata. I had come to the conclusion that a calculus was the probable cause and made another attempt to locate it, but without avail.

Lieut. BELL, A.V.C., suggested that the symptoms were very similar to those of Sand colic which he had recently met with in the service, and asked if such had been used.

Mr. Toope replied that none was to be obtained in his district.

Mr. HOGBEN suggested a dose of castor oil, believing the case to be one of obstinate constipation. He had found good effects after linseed had failed.

The sequelæ may be interesting: Sunday—Visited mare, found that another very severe attack had occurred during the night, so severe that the owner believed the mare to be dying. She was laid down fully stretched out, sweating profusely,

* At the meeting of the South Eastern V.M.A., at the County Hotel, Canterbury, on Saturday, 29th April.

and was with difficulty got up. Another dose of Chloral was given; subsequently flatus was passed freely and some small amount of fæcal matter. When I saw her at 9.30, she had obtained complete relief; copious evacuations had occurred, she had commenced to feed, and drank freely.

I noticed that the evacuations had a peculiar appearance and were very gritty: then I learnt for the first time that the mare had been in the habit of picking up mouthfulls of soil whenever she had an opportunity when at plough. Needless to say, hereafter she will wear a muzzle.

So a diagnosis of Sand colic would have been near the markafter all.

THEO. C. TOOPE.

FRACTURE OF LEFT PARIETAL BONE (?) IN A DOG.

The subject of these notes is a well-bred collie. While out with his owner on a path by the railway line the dog got between the rails and was struck by a light engine travelling at a good speed. He was carried home, and left by his owner for the night in an outhouse.

Seen next morning by the writer, the following points were noted. There was a small incised wound, about ½ in. long, in the sagittal direction, situated about ¾ in. behind the mid-point of the left frontal crest. Considerable swelling had occurred for about an inch all round this wound, which was dry and caked with mud. The patient was unconscious, with eyes open, corneal reflex absent and marked internal strabismus of both eyes. Opisthotonic spasms occurred at short intervals and there were almost continuous choreiform movements of the head. The dog frequently barked and moaned. There were rhythmic pawing movements of the left fore and hind limbs, while the right limbs were apparently paralysed, being motionless and atonic. The pulse was frequent and feeble, respirations accelerated, and the temperature 99° F.

The wound was cleaned and dried, and the hair in the immediate neighbourhood removed. Examination was rendered difficult by swelling, but no displacement of bone could be discovered. Fracture of the left parietal bone with sub-dural hæmorrhage was suspected.

Iodine ointment was applied to the wound and adjacent swollen area, and Morph. sulph. gr. i. given subcutaneously. Food was supplied by nutrient suppositories.

The same evening the spasmodic movements and the barking had ceased, and the respirations had slowed a little. The corneal reflex had returned but without further signs of consciousness.

Late that night the respirations became very shallow, and the temperature fell to 97.5° F. The femoral pulse was very frequent and almost imperceptible. It was also noted that in addition to the internal strabismus, the eyes had become extremely retracted, so that the closed eyelids were almost concave instead of convex.

Little hope of the animal's recovery was now entertained. Three-quarters of a pint of 5% salt solution at about 103° F. was injected per rectum. Atropin. sulph., gr. 1/50th was given subcutaneously, and the animal well covered and left for the night.

Early next morning, to the writer's surprise, the patient was found conscious, with the eyes normal, pulse good, and the temperature 100° F. The paralysis of the right limb was partial; the animal could move them a little, but could not use them to support weight in trying to rise. He could lap milk with difficulty, but managed better with the head supported. On the following day the temperature had risen to normal. Pot. iod. (ʒ ss. per diem) was given for a week, followed by a a course of arsenic and quinine.

At present, nearly five weeks from the date of injury, the only symptom remaining is an occasional choreic twitching of the head, which is slowly disappearing. J. W. H.

ABSTRACTS FROM FOREIGN JOURNALS.

CANCEROUS TUMOUR OF THE PERICARDIUM AND ANTERIOR VENA CAVA IN THE HORSE.

Montazel has recorded the case of a mare which showed the following symptoms (*Rev. Vet. Milit.*). She was found one morning immovable, with the head low and the fore limbs separated in consequence of an enormous oedema of the breast, shoulder, and arms, which extended as far as the feet, lessening progressively from the knees downwards. The temperature was 102.4° F., and everything else was normal. The oedema augmented progressively, and in the following days involved the parotid, sublingual, and labial regions; the jugulars swelled, and the pulse was weak and rapid. The temperature rose to 103.1° F. Treatment was instituted; but the mare died, after undergoing various attacks of syncopy, on the thirteenth day of the illness.

Post-mortem examination revealed, as the principal lesion, a very curious neoplasm of the external surface of the pericardium and of the right side of the heart. This neoplasm began very near the base of the sac, and was directed from below upwards; it involved the right ventricle, which it partly covered, and upon which it thickened and developed, completely englobing the anterior vena cava for a length of about four inches, starting from its point of origin.

This tumour was poorly supplied with vessels in its exposed inferior portion; but its swollen upper portion was nourished by a very rich network of vessels gorged with blood. It adhered very firmly to the pericardium, from the chorion of which it had originated.

The myocardium was pale and fragile, and the endocardium was healthy. The vena cava, in the portion involved by the tumour, was the seat of an intense phlebitis. The lumen of the vessel was partially obstructed by a large fibrinous clot, yellowish, undergoing organisation, and adherent to the vein. The internal tunic of the vein presented very numerous vegetations. The lymphatic vessels

which passed through the pericardium around the tumour were dilated and a little hard. The tracheobronchial and prepectoral glands, and those at the base of the heart, were slightly hypertrophied. From the macroscopic characters of the tumour and the results of the microscopical examination, the author concludes that it was an encephaloid carcinoma, which had undergone a lipomatous transformation at some points.—(*Rivista de Higiene y Sanidad Veterinaria.*)

INFECTIOUS ABORTION IN PIGS, AND SWINE FEVER

Dörrwächter has repeatedly had opportunities of observing considerable outbreaks of infectious abortion in swine. In one locality, half the pigs in it aborted. The time of abortion was the eighth to the twelfth week of gestation. Premonitory symptoms often appeared, in the form of vaginal swelling and discharge. Generally, after the abortion, an odourless grey-yellow vaginal discharge was visible; but this soon disappeared. Disturbance of the general condition was rare.

In addition to the form of abortion above described, Dörrwächter also observed, chiefly in the months of July and August, another running an especially malignant course, to which the pregnant sows fell victims almost without exception. The most striking feature of the affection was that this abortion, depending on an infectious endometritis, very often occurred together with swine fever; and there were establishments in which cases of pure swine fever occurred along with cases both of pure endometritis and those in which the two diseases co-existed.

The clinical symptoms indicated a severe general disease; and the chief local symptom was a considerable swelling of the vagina. Death occurred in from one to five days, and only about 20% of the affected animals survived the disease. Sometimes the course of the illness was so accelerated that the dead fœtus was not expelled. In the sows which recovered, the fœtus became macerated and remained in the uterus until slaughter, when their remains were found. Treatment was almost always without success.

The post-mortem appearances were those of an endometritis and septicaemia. Dörrwächter himself microscopically examined numerous preparations from the uterine wall, uterine mucous membrane and exudate, and could demonstrate small bacilli with bipolar staining. He was unable to decide whether these represented Bang's abortion bacillus, the bacillus suisepticus, the bacillus suipestifer, or some other organism.—(*Berliner Tier Woch*).

THE TREATMENT OF "KNEE TUMOURS" IN CATTLE.

A. Salvisberg, of Tavonnes, has published a note upon this subject (*Schweizer Archiv. für Tierkeilkunde*). He operates upon bovine "knee tumours" by opening them with a pointed knife, clearing away the fibrous mass, scraping the membrane formed in the interior with a curette, swabbing out the cavity with a piece of gauze soaked in a 50% solution of carbolic acid in spirit, and then drying. He treats elbow tumours of the horse in the same way.

For quite large tumours, or small thick-walled ones, Salvisberg recommends the repeated rubbing in of "French fire." This is an old nostrum prepared by digesting 25 grammes each of powdered euphorbium and powdered cantharides in a mixture of 300 c.c. of olive oil and 200 c.c. of turpentine for a fortnight, and well shaking the mixture daily. Then, after allowing the mixture to stand till it becomes clear, its fluid portion is poured off. This vesicating agent is said to be far superior to cantharides preparations and other blisters.—(*Berliner Tier. Woch.*)

W. R. C.

SOUTH EASTERN VETERINARY ASSOCIATION.

(NATIONAL V.M.A.—SOUTHERN BRANCH).

A special informal meeting was held at the County Hotel, Canterbury, on Saturday, 29th April.

Present: Mr. E. L. DIXSON, Margate, President; Messrs. Jas. Crowhurst, Canterbury; T. F. Hogben, Ash; E. Morgan, Faversham; T. C. Toope, Dover, Hon. Sec. Lieut. Bell, A.V.C., Brighouse, was present as a visitor.

The PRESIDENT. on opening the meeting, observed that it was nearly two years since they had met, a fact much to be regretted for many reasons, as undoubtedly these meetings did much good both professionally and socially. However, the present stress of circumstances and the absence of a large number of their members now engaged on military duties, if not entirely, to some extent, justified the conditions that had existed. Now, he hoped, we should again be able to resume our meetings, and he begged of those who could in any way spare the time to attend them regularly—he regarded it as a matter of duty for members who were not serving with the forces abroad to keep these institutions going as far as was possible.

They would remember that at their last meeting it was arranged that their next meeting should be held at Margate, when he had hoped to entertain those attending. He now further extended this invitation for a future occasion, and hoped at no distant date to have the honour of welcoming the members of this Association and their ladies there.

Mr. JAS. CROWHURST concurred with the President's remarks on the utility of these meetings, and hoped the good work begun would be continued, there was sufficient members left to carry on if they could be induced to attend, and there were many matters that required their attention at the present time in the profession. Personally, he thought it was advisable to call another meeting at an early date, when he hoped every effort would be made by members to attend.

The SECRETARY stated that possibly he was somewhat to blame in not calling a meeting earlier. He had mentioned the matter to several members he had met, and written to others last summer, but all agreed that as only a few members could attend, it was preferable to defer the matter for a time. His own enthusiasm had not diminished, but his time had been very fully taken up with government duties, lectures, etc., and he had been doing the work of a neighbouring practitioner who had gone to Canada on transport duty—beside his own private practice, so that if the work of the Society had been neglected to some extent, he felt it was somewhat excusable in the circumstances.

It was unanimously resolved that another meeting be

called forthwith, and that it should be held at Canterbury as the most convenient railway centre, on Saturday, 13th May, at 2.30 p.m., due notice to be sent to members as early as possible.

The SECRETARY stated that according to the rules all officers elected at the last annual meeting held were time-expired long since and needed re-electing, suggesting further this should be done *en bloc* until the end of the war, which he hoped would be over before another year.

Mr. MORGAN proposed this should be done, and it was resolved unanimously that such course should be taken.

Referring to the small numbers present, Mr. Toope said he had relied on advertisements in *The Record* and *The News*. He was in bed with influenza when the postal notices should have been in the hands of the printer, and when he was well enough to attend to it, the printing offices were closed for the Easter holidays. It was evident the advertisements had been unnoticed by many.

After discussing several matters in connection with Veterinary Inspection and other subjects, it was decided that these should be brought forward at the next meeting, as the gentlemen particularly interested were not present.

Mr. Toope related the history of an interesting case he had under treatment during the past week.

(See p. 502)

THEO. C. TOOPE,
Hon. Sec. and Treasurer.

INVESTIGATIONS OF STRAINS OF TUBERCLE BACILLI DERIVED FROM SPUTUM. BY A. STANLEY GRIFFITH, MD., VICT. [Abridged.]

"I propose in this paper to summarise the whole of my observations upon the types of tubercle bacilli in the sputum of consumptives. The total number of strains of tubercle bacilli isolated by me from sputum is 212. Of these, 29 were investigated for the Royal Commission on Tuberculosis, 152 for the Grocers' Company, and the remainder (31) on behalf of the Medical Research Committee.

Thirty-one new strains of tubercle bacilli have been raised from sputum. The patients from whom sputum samples were derived varied in age from 17 to 53 years: 15 were under 25 and 3 were over 40. Of the patients 12 were females and 19 were males.

To ascertain whether or not a strain is capable of producing pigment on serum it is essential to use bovine serum, which is of yellow colour when coagulated. The serum I have used for subcultures has, during the greater part of my work at Cambridge, been obtained from a single animal, a Shorthorn cow, which is kept at the farm for the sole purpose of supplying serum. Different batches of serum from this cow have varied in colour, when coagulated, from pale yellow to golden yellow, but all have favoured the production of pigment. On a golden yellow serum the human type of tubercle bacillus produces a rich yellow, often orange-yellow pigment. With a less yellow serum the colour of the pigment varies from light cream to yellow. On a colourless serum, such as is usually obtained from the calf, pig, goat, or horse, the growths of human tubercle bacilli are greyish or greyish-white and are not pigmented. Standard bovine cultures have never in my experience produced bright yellow pigment, even on a golden yellow serum. Yellow pigment in a serum culture is therefore a character of considerable differential value.

Four Atypical Strains.

With the exception of the majority of strains derived from lupus and of a few mixed strains, all the strains of tubercle bacilli of human origin upon which I have previously reported have been readily classified as either of bovine or of human type. This classification has been based upon the characters of growth on artificial media and the virulence for certain species of animals, the rabbit being the standard test animal. The deviation from type observed in the majority of lupus tubercle bacilli has been in respect of virulence, the cultural characters of these strains having been those of either the human or the bovine type of tubercle bacillus.

During my work on tuberculosis in Cambridge I have obtained now and again from various kinds of human tuberculosis strains of tubercle bacilli which have displayed another kind of anomaly. These strains have exhibited standard (mammalian) virulence, but have not corresponded to either of the two mammalian types of tubercle bacilli in respect to their cultural characters. Of this new variety of tubercle bacillus I have obtained four strains from sputum.

[Clinical and cultural details are given of four pulmonary cases.]

On the clinical side the cases have not presented any unusual feature. With regard to the biological properties of the strains isolated, it must first be noted how in most particulars the strains resemble the human type of tubercle bacillus. All the strains have produced in the rabbit and the guinea-pig the pathogenic effects of standard human tubercle bacilli. They resemble human tubercle bacilli also in their mode of growth on serum and glycerine serum. Microscopically the strains exhibited very irregular morphology, and there were many long, curved, and beaded forms both in the sputum and in cultures. They differ from standard human tubercle bacilli only in the way they grow upon glycerine agar, potato, and broth. On these media they are dysgonic, and save for very minor differences on glycerine agar have displayed characters which would entitle them to classification with bovine tubercle bacilli. The cultural features of three of the strains were practically identical. The other strain produced moderately good growth on agar, not equal to that of standard human tubercle bacilli, but growths definitely dysgonic on potato and broth.

The growths on serum and glycerine serum of all the strains so closely resembled those of standard human tubercle bacilli that at first I was of the opinion that my failure to get similar characteristic growths on other media was due to faulty technique—*i.e.*, to the use in the tests of not sufficiently vigorous subcultures, or to unfavourable media. The tests were therefore repeated again and again, but always with the same same results. Two of the strains have been under observation for more than three years, and have been subcultivated on serum upwards of 60 times. Even after this prolonged subcultivation there has been manifested no increased capacity to grow on glycerine agar, potato, or broth. The same stability of cultural characters has been presented by each of the other strains after a period of observation of two and a half years. The distinctive cultural features of each strain have been retained also after subcultivation for several generations on glycerine serum and (of three strains) after passage through the bodies of animals, (rabbits and guinea-pigs). These strains appear therefore to be stable new varieties of the tubercle bacillus, and on account of their closer resemblance to the human than to the bovine type of organism I have provisionally classified them as atypical human tubercle bacilli. Since this paper was writtten Eastwood and F. Griffith have reported in the Journal of Hygiene (Vol. XV., No. 2, Jan. 14, 1916), the isolation of similar atypical strains from cases of bone and joint tuberculosis.

In order to ensure that samples of this class of strain are not overlooked, it is essential to use for testing pur-

poses not only a variety of glycerine media but also a serum which favours the production of pigment. The errors of classification which might have been made in these cases by a too restricted variety of culture tests are the following. If the serum used had been colourless or of poor quality distinctive (pigmented) growths would not have been secured, and the strains would have been classified as dysgonic with the pathogenicity of standard human tubercle bacilli. On the other hand, if the culture tests had been limited to egg and serum, with and without glycerine, the strains would not have been recognised as anomalous and would have been classified with standard human tubercle bacilli.

It is notable that of my series of 212 sputum examinations three only (1.4 per cent.) yielded tubercle bacilli of bovine type. Also that in each of these three cases, though the sputum was repeatedly tested, none but bacilli of the bovine type were on any occasion isolated. No other investigator in this country has cultivated from tuberculous sputum any but tubercle bacilli of human type, this result being recorded by Bulloch and Cobbett in regard to 23 and two cases respectively, and by Cruickshank in reference to an unspecified number of observations. This great preponderance in pulmonary tuberculosis of the human to the exclusion almost of the bovine tubercle bacillus is in striking contrast to the relative frequency with which bovine tubercle bacilli occur in surgical tuberculosis and in the tuberculosis of childhood.

In this country, therefore, pulmonary tuberculosis which has arrived at the ulcerative stage is but very rarely referable to tubercle bacilli of bovine type. And elsewhere than in Britain an even smaller proportion of the sputa of persons suffering from pulmonary tuberculosis has yielded bacilli of bovine type. Out of 736 cases tested by foreign investigators three only yielded bovine tubercle bacilli; and further, in two of these three the bovine bacillus was only sparsely mixed with preponderating bacilli of human type, while in the third case proof was not afforded (only a single examination of the sputum having been made) that in this instance also both types of tubercle bacillus were not coexistent in the lungs of the patient.

Method of obtaining Cultures of the Tubercle Bacillus by means of Antiformin.

This method, which has proved on more extended trial to be very trustwotthy, was the outcome of the observation that the presence of free antiformin in a tuberculous fluid used for sowing cultures was not detrimental to the growth of the tubercle bacillus. There is no need, therefore, to centrifuge the bacilli and wash them free from antiformin before sowing. In fact, it is unadvisable in cultivation experiments to allow an antiformin sputum mixture to become so fluid that it is possible to centrifuge the bacilli.

Equal volumes of dilute antiformin (Antiformin, D.R.P., a mixture of sodium hydrate and Eau de Javelle), and sputum are pipetted with a wide-bore pipette into a small test-tube and thoroughly mixed. At intervals subsequently one loopful of the mixture is spread evenly over the surface of egg medium and the tubes are then incubated. By means of this simple procedure I obtained pure cultures of tubercle bacilli from 26 of the 31 new samples of sputum. In each experiment the volume of the sputum taken was about 1 c.c., and this was mixed with an equal volume of a 10 per cent. dilution of antiformin, thus forming a 5 per cent. antiformin sputum mixture. Egg tubes were sown with this mixture at intervals of 5 (sometimes 10) minutes during the first 30 minutes, the first tube being sown five minutes, occasionally 10 minutes, after the mixture was made. Tubes were also sown in many instances after longer intervals, up to 24 hours.

In all the 26 positive experiments the mixtures were free from living organisms other than tubercle bacilli in 20 minutes or less. In 12 experiments pure cultures of tubercle bacilli were obtained after the antiformin had acted for about 10 minutes, and in seven experiments after exposure for only five minutes. These experiments show how speedily organisms other than tubercle bacilli succumb to the action of antiformin. On the other hand, tubercle bacilli themselves did not long resist the action of five per cent. antiformin. In 13 experiments mixtures which yielded pure cultures of tubercle bacilli after 10 minutes' exposure to five per cent. antiformin were sterile after further periods of 5 or 10 minutes. The sputa in these cases were thin and mucinous, and in such sputa the resisting power of the tubercle bacillus is apparently little greater than that of the other microbes present.

It is evident from these results that with thin sputa the margin of time available during which pure cultures of tubercle bacilli are possible from a mixture may be very brief. When the sputum was thick the tubercle bacilli escaped early destruction, and such mixtures were found capable of producing cultures 24 hours after the sputum and antiformin were mixed. While five per cent. antiformin has given good results, so low a percentage has certain disadvantages for routine use. When the sputum is at all tenacious some time may elapse before organisms other than tubercle bacilli are destoyed and many may escape destruction altogether.

The work here reported on has been carried out in the Pathological Department of the Field Laboratories, University of Cambridge, on behalf of the Medical Research Committee.—*The Lancet.*

*** These strains have maintained their characteristics *in vitro* on given media. It is not possible to predicate what changes they might show *in vivo*, if passed through several human hosts. The hypothesis that T.B. was originally parasitic on vegetable organisms and was handed to man *via* the bovines would allow the possibility of intermediate and atypical strains.

Diet and Evolution.

The following excerpts are from one of a series of articles in *The Lancet*, entitled, "Food Economics in relation to the war," by Harry Campbell, M.D. LOND., F.R.C.P., LOND., Physician to the West End Hospital, London.

"Man is neither purely carnivorous nor purely vegetarian: he is a mixed feeder. Some contend that he is by nature purely vegetarian, and that a strict vegetarian diet is more conducive to health than a mixed, and a vegetarian enthusiast has recently suggested that the present would be a good time for the nation to exclude animal food altogether, on the ground that the food production of this country could be greatly increased if the farmer ceased to breed cattle, sheep, and pigs, and devoted himself exclusively to the cultivation of vegetable food—above all, of the cereals. We must be careful to avoid the sentimental error of supposing that man is by nature strictly vegetarian, no matter how anxious we may be to adopt a diet which does not involve the rearing of animals for slaughter. It was by virtue of persistent slaughter, continued through many thousands of centuries, that man evolved from the ape—that he grew into a being endowed with speech and reason and with aspirations beyond the grave. I have no doubt that it was the attraction of animal food which led the pre-human ape to abandon the forest for the plains, and that the conditions entailed by hunting were the chief factors in determining his evolution into man.

Other factors also operated. Intertribal warfare was, I believe, one of these, and I mention it here because it

bears upon a question of burning interest at the present time—the influence of warfare on evolution. All are agreed that whatever influence modern warfare may have in bracing up and stimulating a nation to meet difficulties, it has a disastrous effect eugenically, seeing that it causes an elimination of the physically fittest, and, in a country like our own, which adopts the voluntary system, of the bravest, most spirited, and most conscientious—in short, of those with the most grit. A strong argument by the way, against a strictly voluntary system. While modern warfare is a grave hindrance to evolution, I believe that primitive warfare played a not inconsiderable part in furthering it, notably in the psychic sphere, for it was a warfare of tribe against tribe, and its general effect was to cause a survival of the most brainy, most courageous, and most energetic tribes at the expense of their less gifted antagonists. This process continuing through many thousands of years, must have led to a steady evolution of the qualities which secured victory. This is a further illustration of my contention that man has evolved through slaughter. Strange, indeed, it is that he should have fought his way upward by bloodshed, and that from the standpoint of evolution modern warfare should have an effect the exact opposite of the old-time warfare of tribe against tribe."

Milk in Dietetics.

"It is very generally but erroneously believed that the child, as distinguished from the babe, needs milk and would suffer greatly if the supply of dairy milk suddenly failed. As a matter of fact, dairy milk has injured children far more than it has profited them. Milk, affording as it does a peculiarly favourable soil for the growth of disease germs, has carried disease and death to hecatombs of children. Not only has it been the chief means of conveying tuberculosis, but it has acted injuriously by favouring the consumption of soft foods, such as sops and milk puddings. It goes without saying that the infant, like the young of other mammals, requires milk for the first period of its life, and that the proper milk for it is its own mother's. When this fails, as it sometimes does, mainly owing to unhealthy upbringing, we must, I suppose, gratefully acknowledge the service which non-human milk has rendered in enabling us to rear infants artificially. While, however, the infant needs milk of some kind during the first nine or ten months of life, it does *not need any after that period.*

It is strange how the belief to the contrary has arisen. Why should the young of man any more than the young of any other mammal require milk after it has left the breast? It is only since man first domesticated the cow and the goat, and this from the point of view of his evolution was but as yesterday, that he has been supplied with any milk other than human, and it is absurd to suppose that before that time his health suffered from the lack of cow's or goat's milk. To this day many pre-agricultural tribes are without any. When Australia was discovered, and this was only a few hundred years ago, the natives had not cultivated one square foot of that great continent; their only domesticated animal was a half-wild dog, and not one of them had ever tasted any other milk than woman's. Nevertheless, they were a vigorous healthy race with magnificent teeth. I mention this latter fact because I have heard it seriously suggested that the lack of an adequate supply of dairy milk is the chief cause of bad teeth among the poor of this country.

My point is not that dairy milk is a useless food for man, but merely that it is not essential to him after the nursing period. Its chief value to the human race, so it seems to me, is as a source of butter and cheese, two highly concentrated and agreeable foods, admitting of prolonged storage. For both these articles we are largely dependent upon foreign supplies. In 1913 we imported butter to the value of £24,000,000, and cheese to the value of £7,000,000. Would it not be wise, during the period of the war at least, to reduce our consumption of milk to a minimum and to make as much butter and cheese as possible, especially the latter, on account of the large amount of protein it contains?"

Loose talk about Tuberculin.

"From first to last the tuberculin test has been unreliable; it has cast suspicion on honourable men, led to the loss of valuable cattle, and lent itself to the discreditable devices of a small number of unscrupulous persons in this and in other countries, at the expense of the breeders, the exporters, and the cattle-breeding industry generally. Some prominent Northern breeders have for some years at their annual sales declined to sell subject to the test, and we do not think they have had any reason to regret the stand they so courageously made. If the action of the exporters already referred to leads to the rejection of the tuberculin test by the cattle breeders of the British Islands, it will have rendered a great service to the industry at home and abroad. Let the breed societies definitely decline to sell animals subject to the tuberculin test, and they will stamp out once and for all a system which has been tolerated far too long in this country, where we have the finest varieties of cattle and the healthiest herds in the world. Breeders have borne too patiently the exactions of this nostrum of science, falsely so called, and while no breeder will undervalue the findings of science and help that science has rendered and is rendering to the breeding and feeding of live stock, yet all these findings must be tested, not in the laboratory, where the tuberculin test may have some diagnostic value, but in the actual practice of his calling.

Tuberculin has sadly failed, and worse than failed, for it has made possible practices which are detested by honest men, and cast doubt and suspicion upon a class recently described to us by an American buyer, with thirty years' experience of trading with the cattle breeders in this and other countries, as "the finest men he had met in his travels, whose word was their bond."

*** The foregoing occurs where one would not expect to find it—in the pages of *The Live Stock Journal.* It is misleading—if not mischievous. How would it have been possible to obtain, or maintain, tubercle-free herds without the use of tuberculin? And, in the opinion of those best qualified to understand, both tuberculin and mallein are held to be wellnigh infallible.

ARMY VETERINARY SERVICE

War Office, London, S.W.

Extracts from *London Gazette,*

War Office, Whitehall, April 27.

Regular Forces. Army Veterinary Corps.

To be temp. Qmr. with hon. rank of Lieut.—T. E. Clarkson (April 21).

May 1.

To be temp. Qmr. with hon. rank of Lieut.:—J. R. Devereux (April 21).

May 2.

Temp. Lieuts. to be temp, Capts.:—W. Tully-Christie, L. Herbert (April 13); R. Spittle (April 14).

Following Lieuts. relinquish commns. on termination of their engagements:—A. B. Gibson (April 2); L. H. Ellsworth (April 9); L. Anderson (April 12).

To be temp. Lieuts:—M. B. Steele, W. Norrish (Mar. 22); P. K. Walters, N. V. James, J. L. Sullivan (Mar. 24); W. H. Smith, N. Wright, W. P. Robins, J. H. Brown (Mar. 25); F. J. Braund, J. L. Clark, A. B. Brydon (Mar. 27); H. McC. Nedeau. J. Jacques, A. C. Burt (Mar. 28); F. R. Page, J. Dunn, C. M. Flanders, J. E. Hanna, W. R. Cameron, F. Morthy (Mar. 29).

May 3.

The following relinquish commns.:—Temp. Capt. C. T. Bray (April 14); Temp. Lieut M. Carson, on termination of engagement (April 12).

To be temp. Capt. while commanding a section of a Tunnelling Co.:— Lt. W. T. Wilson, Canadian A.V.C.

To be temp. Lieut.:—Pte. H. W. Craig, 81185, Canadian A.V.C. (Feb. 11).

The following casualties are reported:—

DIED—Capt. H. M. Baker, Australian A.V.C.
Pte. W. Jay, 10242.

The A.V.C. Comforts Fund.

Dear Sir,—I have pleasure in sending further lists for kind favour of publication. May I say that I have received most grateful letters from A.V.C. Officers in Egypt, Mesopotamia, and Salonika, expressing on behalf of themselves and the N.C.Os. and men in their charge, their warm thanks for, and appreciation of the consignments of "Comforts"—books, weekly papers, tobacco, etc., which I have sent out from the Comforts Fund.

One officer writes .—"The comforts your parcels contained were perfect godsends to us, particularly the socks. It is difficult to express our delight on receiving such a splendid collection of useful articles."

Another writes: "The long looked-forward-to parcels from you have just arrived, and on behalf of everybody in this section, we tender to you and your kind lady helpers our most sincere thanks. The books, tobacco, and stationery are the greatest boon to us here in the desert."

I trust that all those supporters of Our Fund will accept these expressions of thanks as *to themselves*, and will continue to send in contributions for the A.V.C.—overseas, and also endeavour to interest others to help likewise.—Yours sincerely,

ADELAIDE M. MOORE.

Strathyre, Parsifal Road,
Hampstead, N.W. May 3rd.

Further Subscriptions received since April 8th:—

	£	s.	d.
Mr. W. L. Cockburn	1	1	0
Major E. J. Lawson, A.V.C.	1	1	0
Mrs. Hunting (collected)	1	1	0
Capt. R. C. Matthews, A.V.C., Salonika	2	2	0
Anonymous—"Somewhere in France"	2	2	0

Parcels received from:—

Mrs. Barcham, Mrs. Fearnside, Mrs. Hibbard, Mrs. Burke-Savage, Mrs. Porteous, Mrs. Lindsay (Dumfries), Mrs. Kirby, Mrs. Baird (Edinburgh), Mrs. Berrie Biddell (Torquay).

Donations to R.C.V.S.

The Secretary of the Royal College of Veterinary Surgeons begs to acknowledge the receipt of the following donations for 1916 to the College funds:—

	£	s.	d.
Officers A.V.C., at Lathom Park:—			
J. W. Brittlebank, Major A.V.C.	1	1	0
S. Robson, Capt. A.V.C.	1	1	0
D. Pollock, Capt. A.V.C.	1	1	0
W. Andrew, Capt. A.V.C.	1	1	0
F. S. Warburton, Lieut. A.V.C.	1	1	0
E. Patrick, Lieut. A.V.C.	1	1	0
J. Whitehead, Lieut. A.V.C.	1	1	0
P. J. O'Brien, Lieut. A.V.C.	1	1	0
H. F. Reynolds, Lieut. A.V.C.	1	1	0
R. C. Baxter, Downham Market	1	1	0
F. Chambers, Capt. A.V.C.	1	1	0
A. N. Foster, Capt. A.V.C.	1	1	0
C. Masson, Torquay	1	1	0
R. C. Matthews, Capt. A.V.C.	1	1	0
P. Penhale, Barnstaple	2	2	0
W. Perryman. London	1	1	0
Western Counties Vet. Medical Association	5	5	0
Amount previously acknowledged	201	8	0
	£224	10	0

Anglo-Franco-Belgian Veterinary Relief Fund.

The following additional donation is reported:—

	£	s.	d.
G. J. Harvey, Bangkok, Siam	2	2	0
H. E. Irwin, Capt. A.V.C.	5	0	0
Previously reported	141	15	9
Total	£148	17	9

OBITUARY.

P. A. WILKS, M.R.C.V.S., 60 Coldbath Rd., Harrogate. Graduated, Lond: May, 1892.

Mr. Wilks died on April 26th, aged 44.

WALTER DREWITT, M.R.C.V.S., Pine Tree Glen, Bournemouth West. Lond: April, 1884.

Death occurred on April 28th, at the age of 52.

The Sterilisation of Tuberculous Meat in Glasgow.

Mr. MacGregor, of Messrs. Ernest Scott & Co., engineers, Waterloo Street, kindly offered to instal at his own expense an apparatus by which the tests to determine the changes which tuberculous meat undergoes when subjected to a high temperature in a steam steriliser could be carried out on a commercial basis. This offer was accepted, and although the apparatus was not not designed for this purpose, the sterilising of the meat was effected in a satisfactory manner.

Briefly, the apparatus may be described as a cylinder 4½ ft. long and 1½ ft. diameter; the under third being double-walled. Steam may be admitted either into the interior of the cylinder or into the double-walled compartment. In the interior of the cylinder is a moveable tray, with a receptacle underneath to collect the juices as they drip from the meat. A pressure gauge and thermometer are attached. After the meat is placed on the tray, the apparatus is hermetically closed The steam is then admitted to the double-walled compartment, with the view of facilitating the creation of a

vacuum, which is secured by means of an exhaust pump. When the required vacuum has been obtained, the steam is admitted into the cylinder, and comes into direct contact with the meat.

Into the centre of the largest piece of meat is inserted a contact thermometer, attached by wires to a battery and electric bell. When the temperature in the centre of the selected piece has been raised to 195° F., *i.e.*, the ascertained thermal death point of the bacillus of tuberculosis, a contact is formed, and the bell rings. After the bell has rung, steam is maintained for 15 minutes, and as the temperature would be steadily rising during that 15 minutes it can with safety be asserted that all tubercle bacilli which may be either on or in the meat have been killed.

The following are particulars of three tests made with meat which had been rejected as unfit for human food on account of tuberculosis.

(A) Three pieces of beef weighing 10 lb., 7 lb., and 6 lb. respectively were cut from the rump of a bullock in prime condition.

Time in steriliser, 1 hour 45 mins.

Weight before cooking	23 lb.	
„ after cooking	...	16¼ lb.
Gravy and fat	...	5¾
Unrecovered	...	1

(B) Three roasts, each weighing 8 lb., from a second grade cow carcase.

Time in steriliser, 2 hours 14 mins.

Weight before cooking	24 lb.	
„ after cooking	...	13¾ lb.
Gravy and fat	...	8¼
Unrecovered	...	2½

(C) Three pieces, each weighing about 7 lb., from the thick portion of the foreleg of a second grade cow carcase.

Time in steriliser 1 hour 47 mins.

Weight before cooking	21 lb.	
„ after cooking	...	12 lb.
Gravy and fat	...	6½
Unrecovered	...	2½

Bacteriologist's Report.

The samples of cooked meat submitted by you to be tested bacteriologically as to the efficiency of cooking in producing complete sterilisation, have given results as undernoted:

Samples A and B, received on November 4th, proved quite sterile by ordinary culture tests, and gave rise to no tubercular or other morbid reaction on inoculation.

Sample C, received on November 5th, and showing tubercles on pleura over portions of three ribs, also gave negative results when tested in the same manner by culture and inoculation.

The pieces of meat forming test C were untrimmed, and in consequence the efficiency of the process was subjected to a severe trial.

The results obtained by Dr. Buchanan are in agreement with those of other investigators.

Chemical Examination.

Portions of (A) were submitted to the chemist, and he reports:—

Herewith submit the results of the chemical examination of samples of tubercular beef, marked raw, steamed, and stewed respectively.

		Raw.	Steamed.	Stewed.
Moisture	p/c	72.11	61.36	47.54
Fat		4.61	5.84	14.26
Total proteid		21.89	31.83	35.48
Ash		1.39	0.97	2.72

The cooking of the stewed sample had been carried so far that the separation of the liquid from the solid was impracticable, therefore the whole of the sample was passed through a mincing machine, and thoroughly incorporated before analysis.

Cold Water Extract.

Total extract	p/c	7.41	3.39	6.07
Proteids, soluble		6.03	2.80	4.46
Albumin	„	1.40	1.04	3.22
Ash	„	1.08	0.79	2.53
Collagene		0.30	0.41	0.26
Muscular fibre		15.54	28.74	28.40

The liquid portion from the steamed sample weighed 2800 grams, 580 gramsconsisted of fat and 2220 grams of aqueous extract (4.26 %) which possessed the following composition:—

Proteid p/c 0.56 | Ash p/c 0.90

The object in forwarding to the chemist meat in a raw, steamed, and stewed condition was that I should then be in a position to present comparative figures, which would enable the committee to determine the relative food value of the same meat sterilised, or stewed by the ordinary household method. Unfortunately the stewing had been overdone, and in consequence it is a somewhat unfair comparison.

It will be observed that the amount of moisture in the stewed meat is low. but the fat, proteids, and ash are high. Again, the cold water extracts show a marked difference between the steamed and stewed meats, but if the figures of the analysis of the aqueous portion of steamed sample be added to those of the solid portion, a more accurate idea of the relative value of the two processes will be obtained.

Steamed—Solid.		Aqueous.	Total.	Cold.	Stewed.
Total extract	p/c 3.39	4.26	7.65	7.41	6.07
Total proteids, soluble	2.80	0.56	3.36	6.03	4.46
Albumin, soluble	1.04	—	1.04	1.40	3.22
Ash „	0.79	0.90	1.69	1.08	2.53

The disparity in the results obtained in the examination of the steamed and of the stewed meats is due to, in addition to the overcooking, to which reference has already been made, the great evaporation which occurs in the latter process, whereas in the former there is little or no escape of vapour.

The result of the analytical examination shows that meat after sterilisation is a highly nutritious food, and as each customer would receive in addition to the meat purchased a quantity of the aqueous portion, no part of the nutriment would be lost to the consumer.*

Loss of Weight.

In all three tests a loss in weight occurred during the sterilising process.

A, weight lost	...	6¾ lb.	= 29.3 %
B, „	...	10¾ lb.	= 44.7
C, „	...	9 lb.	= 42.8

Falk found the loss in weight during the process of sterilistation to be:—

Beef from 53.75 to 64.4 (average 60 %)
Pork „ 37.54 to 51.05 („ 46.04 %)

Rieck found the average loss in—

21 bovine carcases 43.1 %
37 pig „ 16.7

The loss in weight in the three Glasgow tests is much below that found by Falk, and is no greater than that recorded by Rieck.

Appearance, Odour and Flavour of the Meat after Sterilisation.

The meat was in appearance very juicy and normal in every respect. Its odour was agreeable, and in taste resembled somewhat roast beef.—*Meat Trades' Journal.*

*** It may be contended that instead of "highly nutritious," this should read, "contains a large proportion of nutritive substances." Few who used the early importations of American and Australian tinned meats would admit that they were "highly nutritious" although they may have contained a good proportion of nutritive material. But there is no excuse for the continued waste of much good food material in this country when it could so easily be made available. The French have used the process for years past.

H. & A. S. and Dick College.

At the April monthly meeting of directors, Mr. Douglas of Auchlochan in the chair, it was reported that the Board had made an additional grant of £600 to the building fund of the new Royal (Dick) Veterinary College, making a total grant of £1000. The condition attached is that the Society be assured that the College will be continuously maintained as a teaching institution in veterinary medicine and surgery.

"Joint-ill" and research.

In a letter to the Editor of *The Scottish Farmer* Mr. G. Bertram Shields says :—"At our last meeting of the East Lothian Horse Breeding Society we had the matter of joint-ill in foals under discussion, and I read some correspondence I had had with Professor Bradley, of the Royal (Dick) Veterinary College. My letter to him was principally to ask the question, "If funds could be raised, would the College undertake to go into the question of joint-ill in foals, and do research and bacteriological work in connection with it, and endeavour to find the cause of, and cure for it?"

In reply the Professor says :—"We are always most anxious to receive suggestions which will point to any direction in which we can be of service to agriculture, for we hold it to be one of the functions of the College to advance useful knowledge. You will understand therefore that we should only be too glad to conduct research, under the direction of our Professor of Pathology, into the bacteriology of joint-ill. At the present time, however, research is much hampered in two directions. There is, first, the financial side of the matter, upon which I need say no more, and, in the second place, there is the difficulty of getting assistance. In peace time suitable graduates were all too few ; at the present time every graduate joins the Army Veterinary Corps as soon as or shortly after he receives his diploma. This being so, you will understand that research is very slow, because it has to be done in such time as can be spared from ordinary routine work. In the meantime please let me assure you that we should be glad to undertake such research as is possible."

I think we can hardly expect any College staff to take up research work of this kind, and at the same time carry on the ordinary work of the College, without the financial backing of breeders all over the country which would permit of the appointing of someone to specialise in the particular department, and I am certain that if this matter gets the publicity it deserves, the breeders would not be slow to respond, nor would the societies you mention, the Highland and Agricultural, the Clydesdale Horse, and the Shire Horse.

It is not too well known that a splendid new Veterinary College has been erected in Edinburgh to the building fund of which the "Highland" has subscribed handsomely, where there will be ample room and convenience for work of this kind to be carried on—work which we would hope would eventually be the means of saving the lives of hundreds of foals and thousands of pounds to the breeders of this country. As we stand to-day, both breeders and the "profession" are practically in the dark regarding this fell disease, and, as you say, it is only by "conferring together" that a start can be made in fighting against it."

Petrol Supplies.

The President of the Board of Trade has appointed the following gentlemen a Committee of Control :—

Mr. Oliver Bury (Chairman),
Mr. Albert Edward Bowen,
Sir John Prescott Hewett, G.C.S.I.,
Mr. Philip G. L. Webb,

to control the supply and distribution of petrol, and to consider what measures are necessary in the national interest.

(1) To ensure that adequate supplies of petrol shall be available for the purposes of the war and for other essential needs.

(2) With the above object to regulate the use of petrol for other purposes in the United Kingdom during the period of the war,

and, subject to the direction of the Board of Trade, to give executive effect to the measures decided upon.

Mr. H. W. Cole, of the Board of Trade, will act as Secretary to the Committee, whose offices will be at 29 Abingdon Street, Westminster, S.W.

The Committee is not prepared to consider individual applications for supplies of petrol nor to deal with correspondence relative thereto.

DISEASES OF ANIMALS ACTS 1894 TO 1914, SUMMARY OF RETURNS.

Period.		Anthrax		Foot-and-Mouth Disease.		Glanders.†		Parasitic Mange. ‡		Sheep Scab.	Swine Fever.	
		Out-breaks (a)	Animals.	Out-breaks (a)	Animals.	Out-breaks (b)	Animals.	Out-breaks (b)	Animals.	(b)	Out-breaks (a)	Slaughtered. *
GT. BRITAIN. Week ended April 29		19	21					53	74	2	123	446
Corresponding week in	1915 ...	18	20					‡30	‡ 79	1	117	543
	1914 ...	22	23			1	1	43	65		107	1481
	1913 ...	8	9			2	11	52	95		58	768
Total for 18 weeks, 1916		240	273	1	24	21	62	1234	2937	167	1646	5137
Corresponding period in	1915 ...	285	317			11	16	‡223	‡526	144	1392	6089
	1914 ...	337	360	11	74	34	80	1139	2055	139	1272	12848
	1913 ...	242	260			61	204	1295	2693	112	748	10098

‡ The Parasitic Mange Order of 1911 was suspended from 6th August, 1914, to 27th March, 1915, inclusive.

(a) Confirmed. (b) Reported by Local Authorities. † Counties affected, animals attacked :— Excluding outbreaks in army horses.

Board of Agriculture and Fisheries, May 2, 1916